

REMARKS

Claims 1, 4 and 9 are pending in this application. By this Amendment, claims 1, 4 and 9 have been amended and claims 2, 3, 5-8 and 10-20 have been canceled without prejudice to or disclaimer of the subject matter recited therein. Support for the amendments to claims 1, 4 and 9 can be found throughout the specification, for example, at pg. 21, line 25 - pg. 24, line 10 and at least in Figs. 1-8. Thus, no new matter has been added.

I. 35 U.S.C. §112 Rejection

The Office Action rejects claims 2 and 5 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for reciting the phrase "can be." Claims 2 and 5 have been canceled thereby rendering this rejection moot.

II. 35 U.S.C. §103 Rejection

The Office Action rejects claims 1, 3, 4, 9-11 and 15-20 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,629,768 (hereinafter "Hagiwara"), rejects claims 2, 5, 8 and 14 under 35 U.S.C. §103(a) as being unpatentable over Hagiwara in view of U.S. Patent No. 6,727,512 (hereinafter "Stokowski"), and rejects claims 6, 7, 12 and 13 under 35 U.S.C. §103(a) as being unpatentable over Hagiwara in view of Stokowski, and further in view of U.S. Patent No. 6,654,113 (hereinafter "Fukazawa").

Claims 2, 3, 5-8 and 10-20 have been canceled thereby rendering the rejections with respect to these claims moot. The rejection of claims 1, 4 and 9 under 35 U.S.C. §103(a) as being unpatentable over Hagiwara are respectfully traversed.

Hagiwara fails to disclose or render obvious, either alone or in combination with Stokowski and Fukazawa, "observing the photodetection data to determine nonuniformity defects, the nonuniformity defects occurring in the plurality of unit patterns according to another regularity," as recited by claim 1, and the similar features recited by claim 4.

Hagiwara discloses a defect inspecting apparatus that applies illuminating light from a light source to a surface of a substrate to be inspected. Hagiwara discloses detecting incidental and isolated defects such as a shape anomaly of a pattern, nonuniformity of resist film thickness, or a crack. Hagiwara fails to disclose or render obvious detecting nonuniformity defects that occur in a plurality of unit patterns according to another regularity that differs from the regularity of the repetitive pattern that includes the plurality of unit patterns.

Further, Hagiwara fails to disclose or render obvious "the nonuniformity defects are determined by identifying a disarrangement in a regularity of the photodetection data," as recited by claim 1, and the similar feature recited by claim 4. According to the present disclosure as recited by claims 1 and 4, diffraction light is generated by irradiating the repetitive pattern with a monochromatic laser light. A photodetector then photodetects the diffraction light to produce a photodetection data that has a regularity. The photodetection data has a regularity based on the uniform nature of the diffraction light emitted from a normal pattern. Disarrangement in the photodetection data caused by the nonuniformity defects is more easily determined if the diffraction light generated from non-defective pattern is uniform.

Hagiwara provides no disclosure or suggestion of generating a uniform diffraction light or photodetection data having a regularity such that nonuniformity defects occurring in another regularity can be determined based on disarrangement of the photodetection data. Hagiwara discloses detecting defects that affect the operation of a semiconductor device. Therefore, Hagiwara is concerned with any defects that occur in a pattern, even if only a single defect is present. Hagiwara fails to disclose or render obvious detecting nonuniformity defects that occur in a pattern according to a regularity. The presently claimed combination of features is directed to detecting these nonuniformity defects that occur according to a

regularity because such defects are visually detectable in an end product (an image device) due to their regularity, even if the defects are extremely small in size.

Further, because Hagiwara fails to disclose or render obvious detecting nonuniformity defects that occur according to a regularity, Hagiawara fails to disclose or render obvious uniformity of a light source, and more specifically, "wherein the light comprises a monochromatic laser light having a wavelength of 500 to 570 nm," as recited by claim 1, and as similarly recited by claim 4.

According to the present disclosure, a uniform diffraction light is desirable in order to generate photodetection data having a regularity, and thus detect nonuniformity defects that occur with a regularity by identifying a disarrangement in the regularity of the photodetection data. It is difficult to achieve a uniform diffraction light when a light emitted from the light source includes a wide band of wavelengths. Applicants determined that a laser light that includes a single wavelength is highly suited to generating uniform diffraction light, and that, in particular, a laser light having a wavelength in the range of 500-570 nm is highly suited to detecting nonuniformity defects of a coordinate variable system. Although Hagiwara refers to a laser light source, Hagiwara fails to disclose or render obvious emitting light in the specific wavelength recited by claims 1 and 4 in order to generate photodetection data having a regularity such that nonuniformity defects having another regularity are determined by identifying a disarrangement in the regularity of the photodetection data.

Further, neither Stokowski or Fukazawa cure the above-stated deficiencies of Hagiwara. Fukuzawa discloses that a wavelength of an examination light is selected in accordance with a pitch of a repetitive pattern. However, Fukuzawa fails to disclose or render obvious using a laser, much less a monochromatic laser light having a wavelength of 500 to 570 nm, as recited by claims 1 and 4.

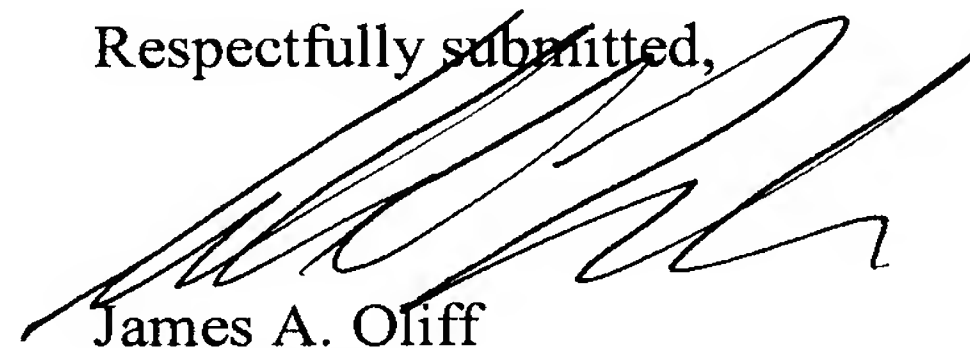
Therefore, claims 1 and 4 are patentable over the applied references in any combination. Claim 9 is patentable for at least its dependency from claim 4 as well as for the additional features it recites.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:

Petition for Extension of Time

Date: August 20, 2008

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The following papers have been filed:

Amendment; Petition for Extension of Time; check# 209112 (\$1,050)

Name of Applicant:	Junichi TANAKA; Noboru YAMAGUCHI
Serial No.:	10/575,378
Attorney File No.:	127648
Title:	Method and Device for Examination of Nonuniformity Defects of Patterns
Sender's Initials:	JAO:SQV/jnm
Assignee:	HOYA CORPORATION

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